Claims

1. A method for predicting the tendency of inhaled particles to deposit within a first patient's throat when said particles are inhaled through an airway defined by said first patient's throat, said method comprising

determining at least one internal physical parameter of said airway defined by the first patient's throat by means of acoustic imaging of the airway defined by the first patient's throat; and

matching said at least one internal physical parameter of the airway of the first patient's throat with a dataset comprising pre-determined data relating to the corresponding internal physical parameter for the throat of at least one other patient,

wherein said dataset also comprises pre-determined data relating to the tendency of said inhaled particles to deposit within said at least one other patient's throat, and said matching thereby enables prediction of the tendency for the inhaled particles to deposit within the first patient's throat.

2. A method according to claim 1, wherein the inhaled particles are delivered to the airway by means of an inhaler device.

3. A method according to either of claims 1 or 2, wherein the inhaled particles comprise medicament.

4. A method according to any of claims 1 to 3, wherein said acoustic imaging comprises acoustic reflection imaging.

5. A method according to any of claims 1 to 4, wherein the acoustic imaging is by by means of acoustic pharyngometry.

6. A method according to any of claims 1 to 5, wherein the at least one internal physical parameter is selected from the group consisting of throat volume, throat cross-sectional area and throat length.

7. A method according to any of claims 1 to 6, wherein the dataset comprises said pre-determined data relating to the corresponding internal physical parameter for the throat of at least ten other patients.

8. A method according to any of claims 1 to 7, wherein the pre-determined data relating to the corresponding internal physical parameter is collected by use of Magnetic Resonance Imaging (MRI) of the throat airway of the at least one other patient.

9. A method according to any of claims 1 to 8, wherein said data relating to the tendency of said inhaled particles to deposit within the at least one other patient's throat is obtained by use of a laboratory model reconstruction thereof.

10. A method according to any of claims 1 to 9, wherein said matching is by use of a curve-fitting method.

11. A method for predicting the tendency of inhaled particles to deposit within an airway defined by a first patient's throat, said method comprising

(a) assembling a dataset comprising data relevant to each of plural patients by

(i) determining at least one internal physical parameter of the airway defined by the throat of at least one other patient; and

(ii) determining the tendency of inhaled particles to deposit within the throat of said at least one other patient

(b) determining at least one internal physical parameter of the airway defined by the first throat by means of acoustic imaging of the airway defined by the throat; and

(c) matching said at least one internal physical parameter of the airway defined by the first throat with said dataset,

wherein reference to said matching thereby enables prediction of the tendency for the inhaled particles to deposit within the first patient's throat.

12. A method according to claim 11, wherein the dataset comprising physical parameter and deposition of inhaled particles data relevant to the at least one other patient is obtained by

measuring the volume (V) of the airway defined by the throat of the at least one other patient;

measuring the path length (L) of a central line of the throat airway in the mid-sagittal plane;

measuring the flow rate (Q) of said particles or the airflow in which said particles are suspended;

calculating a mean throat diameter (D_{mean}) by means of the formula

$$D_{mean} = 2 (V / \pi L)^{0.5} \quad (1)$$

calculating a mean particle flow velocity (U_{mean}) by means of the formula;

$$U_{mean} = QL / V \quad (2)$$

and predicting the amount of particle deposition (P) at the throat by correlating terms defined by the formula

$$P = f(U_{mean} / D_{mean}) \quad (3)$$

wherein P is a function of U_{mean} and D_{mean}.

13. A computer program comprising program code means for, when executed on a computer, instructing a computer to perform some or all of the steps of the method according to any of claims 1 to 12.

14. A computer program product comprising a computer readable recording medium having recorded thereon a computer program comprising code means for, when executed on a computer, instructing said computer to perform some or all of the steps of the method according to any of claims 1 to 12.